

REMARKS

INTRODUCTION:

In accordance with the foregoing, claims 1, 2, 9, 13-15, 19, 26, and 27 have been amended. No new matter is being presented, and approval and entry are respectfully requested.

Claims 1-5, 7-9, and 11-27 are pending and under consideration. Reconsideration is requested.

ENTRY OF AMENDMENT UNDER 37 C.F.R. §1.116:

Applicant requests entry of this Rule 116 Response because:

(a) the amendments were not earlier presented because Applicant believed in good faith that the cited prior art did not disclose the present invention as previously claimed;

(b) the amendments of claims 1, 2, 9, 13-15, and 19 should not entail any further search by the Examiner since the amendments are minor corrections to fix grammatical errors and clarify the claims to overcome the Examiner's objections;

(c) the amendments of claims 26 and 27 should not entail any further search by the Examiner since no new features are being added that were not part of previously examined independent claims; and

(d) the amendments do not significantly alter the scope of the claims and place the application at least into a better form for purposes of appeal. No new features or new issues are being raised.

The Manual of Patent Examining Procedures sets forth in Section 714.12 that "any amendment that would place the case either in condition for allowance or in better form for appeal may be entered." Moreover, Section 714.13 sets forth that "the Proposed Amendment should be given sufficient consideration to determine whether the claims are in condition for allowance and/or whether the issues on appeal are simplified." The Manual of Patent Examining Procedures further articulates that the reason for any non-entry should be explained expressly in the Advisory Action.

CLAIM OBJECTIONS:

In the Office Action, at page 2, the Examiner objected to claims 5, 13, 14, and 15. Applicant respectfully submits that the amendments of claims 1, and 13-15 overcome the Examiner's objections.

REJECTION UNDER 35 U.S.C. §102:

In the Office Action, at page 2, the Examiner rejected claims 1-4, 6-9, 11-16, 20-22, 24, 26 and 27 under 35 U.S.C. §102 (b) and (e) as being anticipated by Tung et al. (U.S. Patent No. 6,435,641 – hereinafter Tung). The reasons for the rejection are set forth in the Office Action and therefore not repeated. Applicant traverses this rejection and respectfully requests reconsideration.

35 U.S.C. §102(b) recites: “[a] person shall be entitled to a patent unless— ...(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States....”

Tung was issued August 20, 2002, and the subject application was filed in the U.S. on June 25, 2003. Since August 20, 2002 is not more than one year prior to June 25, 2003, Applicant respectfully submits that Tung is not a valid reference under 35 U.S.C. §102(b).

Amended, independent claim 1 recites: “...a controller controlling operations of the printer head by comparing first top edge and first bottom edge signals from the first paper sensor and second top edge and second bottom edge signals from the second paper sensor....”

Amended, independent claim 9 recites: “...generating a begin print command at a later of the start print time interval and the second top edge detection signal, and generating an end print command at a later of the end print time interval and the second bottom edge detection signal.”

Independent claim 24 recites: “...a controller comparing first top edge and first bottom edge signals from the first paper sensor and second top edge and second bottom edge signals from the second paper sensor, to control the printer head to start and stop printing on the paper.”

Amended, independent claim 26 recites: “...a controller controlling operations of the printer head according to a comparison of signals from the first and second paper sensors....”

And amended, independent claim 27 recites: "...estimating a start print time based on the first top edge detection signal and generating a begin print command at a later of the estimated start print time and the second top edge detection signal; estimating an end print time based on the first bottom edge detection signal and generating an end print command at a later of the estimated end print time and the second bottom edge detection signal...."

While the device disclosed in Tung has both a media sensor 328 and an optical sensor 330, in the first of the two disclosed printing modes, the optical sensor is not even employed. (See Tung, at col. 6, line 39 – col. 7, line 12).

In the second disclosed printing mode, in which three or more sheets are printed, the media sensor 328 is employed to determine a leading edge of a first unit of paper 12 and a trailing edge of the first unit of paper 12, to position the leading edge for printing, and to determine a length of the first unit of paper 12. (See Tung, at col. 8, lines 36-47, and col. 9, lines 18-27).

In the second printing mode, the media sensor 328 is also employed to determine a leading edge of a second unit of paper 12, and thereafter, does not appear to be employed in the second disclosed printing mode. Tung goes so far as to state that the media sensor 328 is not employed to determine a trailing edge of the second unit of paper, "...because media sensor 328 cannot be relied upon to sense the trailing edge of the second unit of paper 12 in the second mode of operation." (Tung, col. 9, lines 64-66).

Instead, the "...processor 320 determines (by looking at counts from rotary position encoder 316) if the trailing edge of the second unit of paper 12 reaches the nip region between the pinch rollers using the count of rotary position encoder 316 obtained from media movement controller 318 at the detection of the leading edge of the second unit of paper 12, the length of the second unit of paper 12, and the known distance from lever 332 of media sensor 328 to the nip region." (Tung, col. 10, lines 39-47).

The device disclosed in Tung then employs the optical sensor 330 to determine a leading edge of a third unit of paper 12 (and presumably the leading edges of any additional units of paper 12). (See Tung, at col. 11, line 23 – col. 12, line 16).

Tung is unclear as to which sensor determines a trailing edge of the third unit of paper (see Tung, at col. 14, lines 12-21). Regardless though, for detection of each leading or trailing

edge for each unit of paper 12, the device in Tung only uses output from one sensor: either the media sensor 328 or the optical sensor 330, but not both.

In discussing Applicant's previously submitted arguments, the Examiner correctly notes that Tung states: "[u]nder firmware control, processor 320 polls sensor controller 336 to determine the state of the sensors." But in the description of the two modes of operation of Tung's device (col. 6, line 39 – col. 14, line 27), each time the processor 320 tries to determine a leading or trailing edge of a unit of paper and polls the sensor controller 336, output from only one of the two sensors is obtained.

Further, regardless of operational mode, the controller 320 never compares input from the media sensor 328 with the optical sensor 330, for any unit of paper 12. Further still, there is no suggestion in Tung to compare outputs from different sensors, nor any suggestion to even use output from more than one sensor to determine a given leading or trailing edge. Describing polling of the sensor controller 336 in the first operational mode, to determine a leading edge, Tung states: "[p]olling every 1.6 ms has been found to locate the leading edge with sufficient accuracy." (Tung, col. 6, lines 52-54). Describing the second operational mode, Tung states:

"[t]he gap between successive units of paper 12 while operating in the second mode will be, in many cases, too small to permit the trailing edge of the earlier unit of paper 12 or the leading edge of the later unit of paper 12 to be detected by media sensor 328 because lever 332 will not rotate sufficiently in the gap between units of paper 12 to generate a change in the signal supplied to sensor controller 336. Therefore, for imaging operations performed in the second mode, the trailing edge and the leading edge of units of paper 12 will be detected in a different way.

Applicant respectfully submits that these statements teach away from comparing outputs from different sensors, or using output from more than one sensor to determine a given leading or trailing edge.

Thus applicant respectfully submits that Tung neither discloses nor suggests "...a controller controlling operations of the printer head by comparing first top edge and first bottom edge signals from the first paper sensor and second top edge and second bottom edge signals from the second paper sensor...."

Additionally, applicant respectfully submits that Tung neither discloses nor suggests "...generating a begin print command at a later of the start print time interval and the second top

edge detection signal, and generating an end print command at a later of the end print time interval and the second bottom edge detection signal.”

Further, Applicant respectfully submits that Tung neither discloses nor suggests “...a controller comparing first top edge and first bottom edge signals from the first paper sensor and second top edge and second bottom edge signals from the second paper sensor, to control the printer head to start and stop printing on the paper.”

Further still, Applicant respectfully submits that Tung neither discloses nor suggests “...a controller controlling operations of the printer head according to a comparison of signals from the first and second paper sensors....”

Yet further still, Applicant respectfully submits that Tung neither discloses nor suggests “...estimating a start print time based on the first top edge detection signal and generating a begin print command at a later of the estimated start print time and the second top edge detection signal; estimating an end print time based on the first bottom edge detection signal and generating an end print command at a later of the estimated end print time and the second bottom edge detection signal....”

Accordingly, Applicant respectfully submits that independent claims 1, 9, 24, 26, and 27 patentably distinguish over the cited art, and should be allowable for at least the above-mentioned reasons. Further, Applicant respectfully submits that claims 2-4, 7, 8, 11-16, and 20-22, which ultimately depend from one of independent claims 1 or 9, should be allowable for at least the same reasons as claim 2, as well as for the additional features recited therein.

REJECTION UNDER 35 U.S.C. §103:

In the Office Action, at page 3, the Examiner rejected claims 5, 17-19, 23, and 25 under 35 U.S.C. §103(a) as being unpatentable over Tung. The reasons for the rejection are set forth in the Office Action and therefore not repeated. Applicant traverses this rejection and respectfully requests reconsideration.

Applicant respectfully submits that claims 5, 17-19, 23, and 25, which ultimately depend from one of independent claims 1, 9, or 24 should be allowable for at least the same reasons as claim 2, as well as for the additional features recited therein.

CONCLUSION:

In accordance with the foregoing, Applicant respectfully submits that all outstanding objections and rejections have been overcome and/or rendered moot, and further, that all pending claims patentably distinguish over the cited art. Thus, there being no further outstanding objections or rejections, the application is submitted as being in condition for allowance which action is earnestly solicited. At a minimum, this Amendment should be entered at least for purposes of Appeal, as it either clarifies and/or narrows the issues for consideration by the Board.

If the Examiner has any remaining issues to be addressed, it is believed that prosecution can be expedited and possibly concluded by the Examiner contacting the undersigned attorney for a telephone interview to discuss any such remaining issues.

If there are any underpayments or overpayments of fees associated with the filing of this Amendment, please charge and/or credit the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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